Human Systems COI Taxonomy & Definitions

Systems Interfaces & Cognitive Processes

Research and development in this area will produce human-technology interfaces that enhance warfighters' ability to focus on their primary mission. These cognitively engineered interfaces will be intuitive to use, will learn with experience, and support mixed-initiative communication.

Major Lines of S&T Endeavor

- Human-Machine Teaming
    - Intuitive Interaction
    - Trust
- Human Cognitive Process Modeling
    - Decision-Making Models
    - Applied Neuroscience
- Intelligent, Adaptive Aiding
    - Human State Modeling

Protection, Sustainment & Warfighter Performance

Research and development in this area will produce better understanding of the critical environmental stressors and the human factors yielding individual performance differences in operational environments in order to mitigate their effects. This includes designing systems that support and exploit individual differences, and developing operationally relevant metrics to monitor and assess performance.

Major Lines of S&T Endeavor

- Understanding Critical Stressors
    - Extreme Environment Protection
    - Combat Clothing & Protective Equipment
    - Extended Combat Rations & Field Feeding Equipment
    - Survival & Rescue
    - Vehicle Escape & Crash Safety
    - Aerial Delivery
- Understanding Individual Differences
    - Physical Aiding
    - Performance Enhancement
    - Warrior-System Integration
- Developing Operationally Relevant Metrics

Human Aspects of Operations in Military Environments

Research and development in this area will yield capabilities that exploit knowledge of combatant and non-combatant beliefs, attitudes, and norms that motivate threat behaviors. These capabilities will improve sociocultural situation awareness, enable more accurate forecasts of human behavior, and consequently yield more robust courses of action.

<u>Major Lines of S&T Endeavor</u>

- Cultural Situation Awareness
    - Human Activity ISR
- Crisis Analytics for Military Operations
    - Socio-Cultural Models & Synthetic Entities For Sociocultural Data In Denied Areas
    - Social Network Analysis
    - Models for Socially-based Threat Prediction
- Language & Sociocultural Training
    - Building Partnerships

Personalized Assessment, Education, & Training

Research and development in personnel assessment will produce integrated measures and adaptive testing for more precise assessment of individual potential, yielding improved personnel selection and assignment. While work in education and training will produce competency-based systems for full spectrum, rapidly updated, adaptive training that will accelerate learning. Together these capabilities will enhance warfighter readiness and retention while decreasing costs for skills acquisition and maintenance.

<u>Major Lines of S&T Endeavor</u>

- Develop selection measures and instruments
    - Validate non-cognitive screens
    - Develop measures and models for job clusters
    - Develop measures and models for specific jobs
- Innovative Leader Development
- Training Methods, Technology, & Media
    - Theory Of Learning
    - Adaptive, Tailored Instruction
    - Large Scale Live, Virtual, Constructive Simulations
- Joint Interoperable Training
    - Globally Persistent Coalition Ops
    - Realistic Immersive Training